meres, chromosomes and centrosomes, divide into approximately equivalent halves; in many cells and cell aggregates the division halves are not equivalent, though they may later become so by regulation. It seems probable that, apart from this difference, the causes of division of all grades of individuals, from the simplest to the most complex, will be found to be similar. Individuals capable of independent existence arise either by equivalent division, as in bacteria, ameba and the germ cells of many-celled organisms, where subsequent regulation is slight, or by non-equivalent division followed by a large amount of regulation, as in the fission of many higher protozoa and metazoa. The basis of individuality in the one case is division with slight regulation, in the other division and considerable regulation.

Individuals, therefore, come into existence by the division of previously existing individuals, though it is conceivable that they may also be formed anew by the synthesis of smaller units; the former is what is known as *biogenesis*, the latter *abiogenesis*. Likewise individuals go out of existence by the division of one individual into two, with consequent loss of the original individuality, that is in reproduction, and also by the disintegration of an individual into its constituent units, namely in death.

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RESOLUTIONS IN MEMORY OF RUDOLPH AUGUST WITTHAUS AND CHARLES CLIFFORD BARROWS

THE faculty of the Cornell University Medical College has adopted memorials on the deaths of two of its members, Professor Witthaus and Professor Barrows. The memorials, which were drawn up by Warren Coleman, W. Gilman Thompson and W. M. Polk, are as follows:

In the death of Dr. Rudolph August Witthaus, emeritus professor of chemistry, on December 19, 1915, after a long illness, the medical faculty of Cornell University sustained the loss of one of its most famous men.

Dr. Witthaus was graduated from Columbia University in 1867 and received his Master's degree in 1870. He continued his studies at the Sorbonne and the Collège of France. In 1875 he obtained the degree of M.D. from the University Medical College (New York University). He occupied chairs of chemistry and toxicology, chemistry and physiology, and chemistry and physics in the universities of Vermont, Buffalo and the University Medical College (New York University). In 1898 he was called to the chair of chemistry and toxicology in Cornell University Medical College and occupied this position until his retirement, for age, in 1911. Since 1911, he had been emeritus professor of chemistry in Cornell University Medical College.

Dr. Witthaus's career was most notable perhaps for two circumstances, the eminence to which he rose and for the fact that the subject in which he acquired fame was, in his youth, the plaything of a dilettante. His interest in chemistry dated back to his college days when he converted a room in his father's stable into a laboratory where he amused himself with the study of chemical problems. Reverses in fortune soon compelled him to seek a livelihood in what had been his hobby.

In his riper years he was without a peer as a medico-legal expert. His services were often sought by the state in criminal trials involving toxicological questions and his testimony was always an important, if not the leading factor, in the verdicts of the juries. He made what is probably the most complete catalogue of reported cases of poisoning in existence.

Dr. Witthaus was a prolific, as well as a convincing, writer. His text books, "Essentials of Chemistry," "General Medical Chemistry," "Manual of Chemistry" and "Laboratory Guide in Urine Analysis and Toxicology," were much in demand and passed through numerous editions. He contributed articles on toxicological subjects to Wood's "Handbook of the Medical Sciences," and edited "Witthaus and Becker's Medical Jurisprudence" the fourth volume of which he wrote.

He was a Fellow of the American Association for the Advancement of Science and the Academy

of Medicine and other scientific bodies, including chemical societies in Paris and Berlin.

Dr. Witthaus was a man of broad culture and had many interests outside of his profession. He was an ardent disciple of Izaak Walton. His love of books amounted to a passion. At several different periods of his life he collected libraries of first and other rare editions. During his last years his chief interest lay in the collection and cataloguing of books and original manuscripts.

His fortune and medical library were bequeathed to the New York Academy of Medicine.

The faculty of Cornell University Medical College records with sorrow the death of their colleague, Dr. Charles C. Barrows, assistant professor of gynecology, which occurred on January 2, 1916, after an illness of two months.

Dr. Barrows's association with the Cornell University Medical College dates from the foundation of the college in 1898, when he was appointed clinical instructor in gynecology. He occupied this position until his promotion to the assistant professorship of gynecology in 1912. At the time of his death he had been nominated for the professorship of gynecology and he had already assumed charge of the department. The greater portion of Dr. Barrows's teaching consisted of clinical demonstrations and operations in Bellevue Hospital. Following the recent trend in medical education he introduced the system of clinical clerkships into the teaching of gynecology. Dr. Barrows was a successful as well as a popular teacher. Through his ability he excited the admiration of his students and stimulated them to put forth their best efforts; through his kindliness he made them his friends.

Except for a brief period while serving in the army, Dr. Barrows has been connected with Bellevue Hospital since 1880, when he won his appointment as interne. After his return to New York he was appointed assistant visiting gynecologist, holding this position until he became visiting gynecologist in 1915. Many of the finest traits of his character appeared in his hospital relations. He was renowned not only for his skill as diagnostician and surgeon but for his patience and poise under the most difficult circumstances. He was considerate of his subordinates at all times. No patient was too poor to claim his attention. He carried hope and encouragement to every bedside and through his skill restored many a sufferer to health and usefulness. A recent graduate of the hospital, when asked to voice the strongest impression which Dr. Barrows had made upon him, replied, "his heart was as big as the man." The loyalty of the internes serving under him was especially notable. They never speak of him except in terms of affection, and friendships formed during their hospital days grew stronger as the years advanced.

Dr. Barrows was widely known as one of New York's most skillful surgeons, and for years he enjoyed a large and successful practise. He was a member of many medical societies, was a frequent contributor to medical literature on subjects pertaining to his specialty, and devised important new surgical procedures.

SCIENTIFIC NOTES AND NEWS

On the seventieth birthday of the distinguished Swedish mathematician, Professor M. G. Mittag-Leffler, he and his wife set aside their entire fortune for the foundation of an International Institute for pure mathematics.

The Willard Gibbs Medal, founded by William A. Converse, of Chicago, has been awarded to Dr. Willis R. Whitney, director of the research laboratories of the General Electric Company, Schenectady, N. Y. The presentation will be made on May 19, in connection with the meeting of the Chicago Section of the American Chemical Society, when Dr. Whitney will make an address on "Incidents of Applied Research."

Students of pharmacy in the University of Pittsburgh have given a dinner in honor of Dean J. A. Koch, who has been in his present position for twenty-five years.

Mr. Henry W. Fowler has been elected president of the Delaware Valley Ornithological Club.

Sir Richard A. S. Redmayne has been elected president of the British Institution of Mining and Metallurgy in succession to Sir Thomas K. Rose.

At the twenty-first annual meeting of the Michigan Academy of Science held in Ann Arbor on March 28, 29 and 30, officers were elected as follows: *President,* Wm. H. Hobbs; *Vice-presidents,* Zoology, R. W. Hegner, University of Michigan; Botany, G. H. Coons, Michigan Agricultural College; Geology, L. P.